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National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
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Refer to:
OSB1997-0738

April 10, 1997

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Re: Biological Opinion on the Interagency Fish Population
Monitoring Program (FY 1997) in the Umpqua River Basin

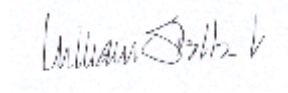
Dear Messieurs:

Attached is the National Marine Fisheries Service's (NMFS) Endangered Species Act (ESA) section 7 biological opinion and conference opinion (Opinion) on the proposed Interagency Fish Population Monitoring Program (FY 1997) in the Umpqua River Basin. The NMFS has determined that the fish population sampling program is not likely to jeopardize the continued existence of listed Umpqua River cutthroat trout (*Onchorynchus clarki clarki*) or proposed Oregon Coast coho salmon (*O. kisutch*) and/or Oregon Coast steelhead trout (*O. mykiss*).



If you have any specific questions please contact Ron Lindland at (503) 231-2315 or Steve Morris at (503) 231-2224.

Sincerely,

A handwritten signature in dark ink, appearing to read "William Stelle, Jr.", is centered below the word "Sincerely,". The signature is written in a cursive, slightly stylized font.

William Stelle, Jr.
Regional Administrator

Enclosure

Endangered Species Act - Section 7
Consultation

BIOLOGICAL OPINION
AND
CONFERENCE OPINION

Interagency Fish Population Monitoring Program (FY 1997)
Umpqua River Basin

Agencies: Roseburg and Coos Bay BLM Districts, and Umpqua National
Forest

Consultation

Conducted By: National Marine Fisheries Service
Northwest Region

Date Issued: April 10, 1997

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I. Background

Umpqua River (UR) cutthroat trout (*Onchorynchus clarki clarki*) was listed as endangered under the Endangered Species Act (ESA) by the National Marine Fisheries Service (NMFS) on August 9, 1996 (61 FR 41514; August 9, 1996). This evolutionarily significant unit (ESU) includes anadromous, potamodromous, and resident cutthroat trout populations occurring below natural, impassable barriers in the Umpqua River Basin. Oregon coast (OC) coho salmon (*O. kisutch*) and Oregon coast steelhead trout (*O. mykiss*) were proposed for listing on July 25, 1995 (60 FR 38011) and August 9, 1996 (61 FR 41541), respectively.

A March 4, 1997, letter from the Roseburg District of the Bureau of Land Management (BLM) requesting formal consultation on UR cutthroat trout and conferencing on OC coho salmon and OC steelhead trout was received by NMFS on March 6, 1997. The accompanying biological assessment (BA) described the effects of the interagency fish population monitoring program in the Umpqua River Basin on UR cutthroat trout. The Roseburg BLM District determined in the BA that the proposed action is "likely to adversely affect" (LAA) UR cutthroat trout. The BA also stated, and NMFS concurs, that the effects determinations are the same for all three ESUs. The BLM (Roseburg District) is designated as the lead agency for this consultation. The Coos Bay BLM District, Umpqua National Forest (UNF), Oregon Department of Fish and Wildlife (ODFW), and Douglas County (DC) will also be participating in the fish population monitoring activities. The BLM will be funding, at least in part, sampling activities performed by ODFW and DC.

The objective of this biological opinion is to determine whether the interagency fish population monitoring program in the Umpqua River Basin is likely to jeopardize the continued existence of UR cutthroat trout, OC coho salmon, and/or OC steelhead trout. The NMFS expects some minimal incidental take of UR cutthroat trout as a result of the downstream migrant trapping to monitor fish populations in the Umpqua River Basin. Effects to the environmental baseline from this action are expected to be insignificant because of project design. Because critical habitat has not been proposed or designated for these ESUs, this biological opinion does not address destruction or adverse modification of critical habitat.

II. Proposed Action

The "proposed action", as described in the BA, is the continuation and expansion of the interagency fish population monitoring program in the Umpqua River Basin during FY 1997. Monitoring of the migration timing, relative abundance, and presence/absence of salmonids within the Umpqua River Basin would involve the use of rotary screw-type and incline plane-type downstream migrant traps, fyke nets, and electrofishing equipment. In a March 25, 1997, memorandum (from Don Rivard, Roseburg District BLM, Fishery Biologist, to Ron Lindland, NMFS) the proposed action was modified to eliminate the use of electrofishing equipment in collecting fish presence/absence data in the Umpqua River Basin. The memorandum stated that fish presence/absence data would be collected by means of visual observation and snorkeling.

The purpose of the downstream migrant trapping is to determine and compare the relative importance of the sampled subbasins to each other in terms of salmonid production, species diversity, and timing and magnitude of outmigrations. Target species in the downstream migrant sampling are juvenile chinook salmon (*O. tshawytscha*), coho salmon, and steelhead trout. UR cutthroat trout are likely to be captured incidentally to the target species.

The purpose of the proposed snorkeling investigations are to determine the presence or absence of fish in streams. This information would, in turn, be used to determine the proper riparian reserve width for a given stream, as directed by the Northwest Forest Plan (NFP). These projects will be important in identifying presently unknown salmonid habitats and refining knowledge of known habitats and the salmonid populations which they support.

Table 1 of the BA lists the size, location, and duration of operation of six rotary screw-type downstream migrant traps and one incline plane-type downstream migrant trap which have been operated in previous years and which are proposed for continued operation during FY 1997. Table 2 of the BA lists proposed sizes and locations for ten new rotary screw-type downstream migrant traps proposed for installation and operation during FY 1997. Through mutual agreement between private landowners and the BLM, some of the downstream migrant traps may be installed on private land (Don Rivard, Roseburg BLM District Fishery Biologist, pers. comm., March 18, 1997).

An additional 11 alternative trap sites are listed in the BA, if installation and operation of traps at the sites listed in Table 2 prove to be infeasible. The rotary screw traps and the inclined plane trap would be operated from early March to early August, depending on location. Traps would be checked daily during morning hours, when water temperatures are coolest. During freshets, traps would be checked hourly (or as often as necessary) to prevent accumulations of debris in the traps. Traps would not be fished during time periods when they cannot be properly checked and maintained. The downstream migrant traps will be carried or slid down the stream bank, floated into place in the stream, and anchored to trees or bedrock on the shoreline by means of cables.

Table 3 of the BA lists the locations of four fyke nets which would be used to trap downstream migrants in streams which have inadequate flows to operate a rotary screw trap. The fyke nets would only be operated for a month or less in each location between early March and mid-June. Fish diverted into a fyke net would be collected in a baffled trap box at the downstream end of the net.

Table 4 of the BA summarizes the sampling, handling, and marking protocol to be used when operating the downstream migrant traps. Juvenile chinook salmon will be marked, returned to the stream, and recaptured to estimate trapping efficiency. A sample of 100 salmonid fry per week will be measured and returned to the stream. To reduce handling, UR cutthroat trout will only be counted and released; they will not be anesthetized, marked, measured, or recaptured. The traps and fyke nets will be operated seven days per week and will be checked daily.

Snorkeling techniques would be used to spot check approximately 100 miles of selected streams within the Umpqua River Basin for the presence/absence of salmonids during FY 1997. The Roseburg BLM District is funding approximately 50 percent of the fish presence/absence investigations, but the work would be performed by ODFW personnel.

III. Biological Information and Critical Habitat

The listing status and biological information for UR cutthroat trout, OC coho salmon, and OC steelhead trout are described in Attachment 1. While critical habitat has not been proposed or

designated, Attachment 1 describes potential critical habitat elements for UR cutthroat trout.

IV. Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA, as defined by the consultation regulations (50 CFR Part 402). Attachment 2 describes how NMFS applies the ESA jeopardy standards to consultations for Federal land management actions in the Umpqua River Basin. NMFS is unable at this time to determine whether the action covered by this consultation are likely to destroy or adversely modify designated critical habitat. This determination can be made at a later date when UR cutthroat trout critical habitat is proposed or designated. However, because of the nature of the proposed action, NMFS expects the effects to the environmental baseline and to essential features of salmonid habitat from that action to be minimal.

As described in Attachment 2, the first steps in applying the ESA jeopardy standards are to define the biological requirements of UR cutthroat trout, OC coho salmon, and OC steelhead trout and to describe the species' current status as reflected by the environmental baseline. In the next steps, NMFS' jeopardy analysis considers how proposed actions are expected to directly and indirectly affect specific environmental factors that define properly functioning aquatic habitat essential for the survival and recovery of the species. This analysis is set within the dual context of the species' biological requirements and the existing conditions under the environmental baseline (defined in Attachment 1). The analysis takes into consideration an overall picture of the beneficial and detrimental activities taking place within the action area. If the cumulative actions are found to jeopardize the listed species then NMFS must identify any reasonable and prudent alternatives to the proposed action.

A. Biological Requirements

For this consultation, NMFS finds that the biological requirements of UR cutthroat trout, OC coho salmon, and OC steelhead trout are best expressed in terms of current population status and environmental factors that define properly functioning freshwater aquatic habitat necessary for survival and recovery of the ESU. Individual environmental

factors include water quality, habitat access, physical habitat elements, channel condition, and hydrology. Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are also necessary for the survival and recovery of UR cutthroat trout. This information is summarized in Attachment 1. The NMFS does not expect that installation and operation of the downstream migrant traps and nets will adversely effect any of the environmental factors or essential features of UR cutthroat trout, OC coho salmon and/or OC steelhead trout habitat.

B. Environmental Baseline

Current range-wide status of ESUs under environmental baseline.

The NMFS described the current population status of the UR cutthroat trout in its status review (Johnson et al. 1994) and in the final rule (August 9, 1996, 61 FR 41514). The NMFS described the status of OC coho salmon in Weitcamp et al. (1995) and of OC steelhead trout in Busby et al. (1996).

Action Area. The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The "action area" for this consultation thus includes all Federal and some private lands within the Umpqua River Basin.

The Umpqua River Basin stretches from the crest of the Cascade Mountains to the Pacific Ocean and encompasses approximately three million acres. The Umpqua River Basin is comprised of the Mainstem Umpqua, the North Umpqua, and the South Umpqua subbasins, each having unique physiographic features (Johnson et al. 1994). The Mainstem Umpqua subbasin consists of all watersheds downstream of the confluence of the North and South Umpqua Rivers, including the Smith River, Elk Creek, and Calapooya Creek watersheds.

The Federal agencies manage approximately 47 percent of the Umpqua River Basin. The amount of Federal lands by subbasin is 32 percent in the Mainstem Umpqua, 52 percent in the North Umpqua, and 55 percent in the South Umpqua.

Current status of ESUs under environmental baseline within the action area.

The current population status and trends for UR cutthroat trout, OC coho salmon, and OC steelhead trout are discussed in Attachment 1. Winchester Dam counts are currently the best quantitative measure of UR cutthroat trout abundance in the Umpqua River basin (see Table 1 of Attachment 1). Environmental baseline conditions within the action area were evaluated for all actions included in a September 26, 1996, Biological Opinion issued by NMFS (NMFS 1996a). The evaluation in that Opinion was based on the "matrix pathways and indicators" described in "Making Endangered Species Act Effects Determinations for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996b). This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.

The summarized results of these assessments provide an overview of environmental baseline conditions in the three subbasins that comprise the action area. Environmental baseline conditions in the Umpqua River Basin are predominantly "not properly functioning" or "at risk" in the action area.

Based on the best information available on the current status of UR cutthroat trout, OC coho salmon, and OC steelhead trout (Attachment 1), NMFS assumptions given the information available regarding population status, population trends, and genetics (see page 5 of Attachment 2), and the environmental baseline conditions within the action area, NMFS concludes that the biological requirements of UR cutthroat trout, OC coho salmon, and OC steelhead trout are currently not being met under the environmental baseline within the action area. Significant improvement in habitat conditions is needed to meet the biological requirements for survival and recovery of these species. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of UR cutthroat trout, OC coho salmon, and OC steelhead trout due to the high level of risk these ESUs presently face under the degraded environmental baseline. Effects to the environmental baseline from the action addressed in this Opinion are expected to be minimal because of project design.

V. Analysis of Effects

A. Effects of Proposed Action. The effects determination in the BA was made using a method for evaluating current aquatic conditions (the environmental baseline) and predicting effects of the action on them. This process is described in the document "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996b - Attachment 3). This assessment method was designed for the purpose of providing adequate information in a tabular form in BAs for NMFS to determine the effects of actions subject to consultation. The effects of the action are expressed in terms of the expected effect (restore, maintain, or degrade) on each of approximately 17 aquatic habitat factors in the project area, as described in the "checklist for documenting environmental baseline and effects of the action" (checklist) completed for each action. The results of the completed checklist for the action provides a basis for determining the overall effect of the action on the environmental baseline in the project area. Effects to the environmental baseline from this action are expected to be insignificant (all aquatic habitat factors will be maintained) because of project design.

The NMFS evaluates the effects of ongoing and proposed actions using the three requirements described in Attachment 1. These requirements are: (1) the essential components of the Northwest Forest Plan (NFP), including Aquatic Conservation Strategy (ACS) objectives, watershed analysis, restoration, land allocations, and standards and guidelines, will be fully applied at the four spatial scales of implementation (region, province, watershed, and site or project); (2) that all management actions will comply with all applicable land allocations and standards and guidelines; (3) and that all actions will promote attainment of the ACS objectives.

In past years, research and monitoring activities were not considered to be factors contributing to the decline of listed salmonids. However, as populations of Pacific salmonids continue to decline, the proportion of fish handled for research and monitoring purposes to the total number of fish in a given population has increased.

Enumeration of downstream migrant chinook salmon, coho salmon, and steelhead trout smolts can be used to project future returns of adults, assess the effects of land-use activities on fish production, and evaluate the effects of habitat

restoration and enhancement activities (McLemore et al. 1989). The number of smolts leaving a stream is an important measure of the quality and quantity of the rearing habitat in that stream, and is fundamental in calculating seasonal mortality (Dambacher 1991). As a result the proposed monitoring activities, information would be gained to improve our ability to manage chinook salmon, coho salmon, and steelhead trout populations in the Umpqua River basin. . The likelihood that the use of this information will ultimately increase fish survival, warrants the authorization of appropriate fish population monitoring activities. The only practical means of estimating numbers of fish emigrating from a stream is the use of downstream migrant traps to capture the fish. Once the fish are captured, they can be enumerated.

Rotary and Inclined Plane Traps

Several references cited in Roper (1995) describe the use of rotary and inclined plane traps to capture downstream migrant salmonids. No studies were found, however, which evaluated delayed mortality experienced by salmonids once they are released from the traps. Improper handling of salmonids can result in instantaneous or delayed mortalities. The longer fish remain in the trap box and the warmer the water when fish are being handled, the greater the potential for increased mortality. Elimination or minimization of handling and use of dip nets constructed of soft, fine-mesh material to remove fish from the trap box reduces the potential for injuries which could result in mortality. According to the BA, the rotary screw traps operated for the past six years by the USFS on Jackson Creek, the upper South Umpqua River, and Calf Creek have caught less than ten UR cutthroat trout per trap per year. There have been no observed UR cutthroat trout mortalities at any of these traps during the six years of operation. The mortality rate after release is assumed to be 1-2 percent (Jeff Dose, Umpqua National Forest, Fishery Biologist, pers. comm. March 10, 1997).

In order to estimate the potential number of UR cutthroat trout mortalities resulting from operation of 17 traps, the BLM assumed a mortality rate of 2.5 percent of the UR cutthroat trout trapped. Assuming that a maximum of 100 UR cutthroat trout are caught at each of the 17 trap sites, the incidental take would be 1,700. Applying a 2.5 percent mortality rate, results in a total estimated mortality of 43 UR cutthroat trout.

Disturbance of the streambank substrate and/or riparian vegetation resulting from installation of the downstream migrant traps is expected to be minimal. Traps will be installed only in areas which are in close proximity to existing roads and where streambank angles are low. The downstream migrant traps will be carried or slid down the stream bank, floated into place in the stream, and anchored to the shoreline using cables.

Fyke Nets

Fyke nets can be used to trap downstream migrants in streams which have inadequate flows to operate a rotary screw trap. Again, no studies were found which evaluated delayed mortality experienced by salmonids once they are released from the fyke nets. It is important that the trap box at the downstream end of a fyke net be equipped with baffles or deflectors to provide captured fish a resting area away from the main stream flow (Milner et al. 1985). The fyke nets to be operated by the Umpqua National Forest are all equipped with baffled trap boxes (Jeff Dose, pers. comm., March 10, 1997). According to the BA, the fyke net operated in Calf Creek for one month during 1996 caught 52 cutthroat trout and there was no observed mortality. In order to estimate the potential number of UR cutthroat trout mortalities resulting from operation of the four fyke nets, the BLM assumed a mortality rate of 2.0 percent. The BLM assumed that a total of 1,200 UR cutthroat trout could be caught in the fyke nets. Applying a 2.0 percent mortality rate, results in a total estimated mortality of 24 UR cutthroat trout.

Electrofishing

Reynolds (1983) provides a summary of electrofishing and its general effects on fish. At a given voltage gradient, total body voltage increases with length, resulting in greater electroshock to larger fish. Tetany can be minimized by using the lowest effective voltage output.

Electrofishing can potentially cause injuries or mortalities to juvenile and adult fish. Effects upon adults can be severe. Spinal injuries to adult salmonids from forced muscle contraction have been documented (Sharber et al. 1988). Evidence to date suggests a direct relationship between the number of pulses per unit time and the number of injured fish (Fredenberg 1992, McMichael 1993, Sharber et al. 1994). The

numbers of spinal injuries observed under high-frequency pulsed direct currents can be reduced by substituting lower frequency currents (e.g., <30 Hz), specially designed pulse trains, or continuous direct current (Snyder 1995).

Dwyer et al. (1993) found that electrofishing over recently deposited rainbow trout and cutthroat trout eggs can increase mortality. Dwyer et al. (1995) found that short-term growth of adult rainbow trout and juvenile arctic grayling and cutthroat trout was reduced.

Mesa et al. (1989) observed that electrofishing elicited a general stress response that was manifested not only physiologically but also behaviorally by cutthroat trout in Mill Creek in western Oregon. Long-term effects to both juveniles and adult salmonids are not well understood, but it is expected that most impacts from electrofishing are those that occur directly.

Alternatives to Electrofishing

Because of the potential adverse effects of electrofishing on salmonids described above, the action agencies have agreed to use snorkeling techniques to collect fish presence/absence data in the Umpqua River Basin. Snorkeling is the least expensive, least disruptive, and logistically simplest way of observing fishes in the field. It is effective for obtaining data on abundance, distribution, habitat preferences, and behavior of fishes in many habitat types given sufficient water clarity (Helfman 1983). Based on the potentially damaging effects of electrofishing to the different life stages of UR cutthroat trout and other salmonids discussed above, NMFS believes that the proposed presence/absence investigations should be conducted by means of snorkeling techniques rather than by electrofishing.

B. Cumulative Effects. "Cumulative effects" are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The "action area" for this consultation includes all Federally managed lands and a very limited amount of private land within the Umpqua River Basin and downstream intermittent and perennial stream reaches to the mouth of the Umpqua River.

The Federally administered units contain 47 percent of the approximately 3 million acres in the Umpqua River Basin. The remaining 53 percent is made up of private, county and State land consisting primarily of agricultural and forestry land. A small, but rapidly increasing, percent of this non-federal land is being used for urban growth and expansion.

A substantial portion of spawning and rearing habitat for UR cutthroat trout and other salmonids occurs on USFS and BLM land. Gradual improvements in habitat conditions for UR cutthroat trout and other anadromous salmonids are expected on Federal lands in the Umpqua River Basin as a result of Northwest Forest Plan implementation, as guided by ESA consultation.

Historically, agriculture, livestock grazing, forestry and other activities on non-federal land in the Umpqua River Basin have contributed substantially to temperature and sediment problems in the Umpqua River Basin (USDI 1995a,b,c; USDA 1995). Conditions on and activities within non-Federal riparian areas along stream reaches downstream of the USFS and BLM land presently exert a greater influence on river temperatures and probably contribute more sediment to the habitat of UR cutthroat trout and other anadromous salmonids in the Umpqua River Basin than the USFS and BLM land (USDI 1995a,b,c; USDA 1995).

Significant improvement in UR cutthroat trout reproductive success outside of USFS and BLM land is unlikely without changes in agricultural, forestry, and other practices occurring within these non-Federal riparian areas in the Umpqua River Basin. NMFS is not aware of any future new or changes to existing State and private activities within the action area that would cause greater impacts to listed species than presently occurs. In fact, now that the species is listed as endangered, NMFS assumes that non-Federal land owners will take steps to curtail or avoid land management practices that would result in the take of UR cutthroat trout. For actions on non-Federal lands which the landowner or administering non-Federal agency believes are likely to result in adverse effects to UR cutthroat trout or their habitat, the landowner or agency should work with NMFS to obtain the appropriate section 7 or section 10 incidental take permit, which requires submission of a habitat conservation plan. If a take permit is requested, NMFS would likely seek project modifications to avoid or minimize adverse effects and taking

of listed fish. Until improvements in non-Federal land management practices are actually implemented, NMFS assumes that future private and State actions will continue at similar intensities as in recent years.

VI. Conclusion

The interagency fish population monitoring program in the Umpqua River Basin considered in this Biological Opinion, as described in the BA, its Appendix, and the March 25, 1997 memorandum is not likely to jeopardize the continued existence of listed UR cutthroat trout, or proposed OC coho salmon, and/or OC steelhead trout. NMFS used the best available scientific and commercial data to apply its jeopardy analysis (described in Attachment 2), when analyzing the effects of the proposed action on the population status and biological requirements of the species relative to the environmental baseline (described in Attachment 1), together with cumulative effects.

In reaching this conclusion, NMFS determined that the survival and recovery of UR cutthroat trout, OC coho salmon, or OC steelhead trout life forms within subpopulations that comprise these ESUs can be assured. This conclusion is based primarily on: 1) handling of UR cutthroat trout will be minimized (which will avoid or minimize direct and/or delayed mortality) because they will not be anesthetized, measured, or marked; 2) mortality resulting from operation of downstream migrant traps is expected to be 2.5 percent or less for UR cutthroat trout actually trapped (observed mortalities have been less than 1 percent over six years of operation); 3) mortality of OC coho salmon and OC steelhead trout will be minimized by implementing the sampling, handling, and marking protocol described in the BA; 4) snorkeling techniques will replace electrofishing as a means of determining the presence or absence of fish; 5) effects resulting from installation and operation of downstream migrant traps (sedimentation, disturbance of riparian vegetation) on essential features of UR cutthroat trout and other Pacific salmonid habitat are expected to be negligible.

VII. Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the

threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. The NMFS has no additional conservation recommendations regarding the action addressed in this Opinion.

VIII. Reinitiation of Consultation

Reinitiation of consultation is required: (1) if the action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Biological Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 C.F.R. 402.16).

IX. References

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this opinion in addition to the BA and additional information requested by NMFS and provided by the Roseburg BLM District.

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Sharber, N.G., and S.W. Carothers. 1988. Influence of electrofishing pulse on spinal injuries in adult rainbow trout. North American Journal of Fisheries Management, 8:117-122.

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X. Incidental Take Statement

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. If necessary, it also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

The measures described below are non-discretionary. They must be implemented by the action agency so that they become binding conditions necessary in order for the exemption in section 7(o)(2) to apply. The administrative units have a continuing duty to regulate the activity covered in this incidental take statement. If the administrative units (1) fail to adhere to the terms and conditions of the incidental take statement, and/or (2) fail to retain the oversight to

ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Should any of the species, in addition to the already listed UR cutthroat trout, addressed in this Opinion (OC coho salmon and OC steelhead trout) be listed under the ESA, the NMFS expects that this Opinion will be the basis of a biological opinion for those ESUs. Further, the following Incidental Take Statement is expected to become effective following the NMFS' adoption of this Opinion as the biological opinion once an OC coho salmon and/or OC steelhead trout listing becomes final (50 CFR § 402.10(d)).

A. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Biological Opinion has more than a negligible likelihood of resulting in incidental take of UR cutthroat trout because of direct and delayed mortalities resulting from detainment in and removal from downstream migrant traps used to trap downstream migrating juvenile chinook salmon, coho salmon, and steelhead trout. The Roseburg BLM District estimated that the total incidental take for the downstream migrant trapping portion of the interagency fish monitoring project would not exceed 2,900 UR cutthroat trout. Of that incidental take, the potential direct and/or delayed mortality could total an estimated 67 UR cutthroat trout during FY 1997. The NMFS concurs with those estimates.

B. Effect of the Take

In this Opinion, NMFS has determined that the level of anticipated take associated with the interagency fish population monitoring activity in the Umpqua River Basin is not likely to result in jeopardy to the listed UR cutthroat trout. Likewise, should the OC coho salmon and/or OC steelhead trout covered by this Opinion be listed, the anticipated levels of take for those species is not likely to result in jeopardy.

C. Reasonable and Prudent Measures

The NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of UR cutthroat trout resulting from implementation of the interagency fish population monitoring

project in the Umpqua River Basin. Should OC coho salmon and/or OC steelhead trout be listed, these reasonable and prudent measures would also be necessary to minimize take of those species.

Each administrative unit shall:

1. Avoid or minimize direct and/or delayed mortality resulting from operation of downstream migrant traps.
2. Utilize snorkeling techniques rather than electrofishing equipment to collect fish presence/absence data in streams.
3. Report to NMFS when nearing or exceeding the estimated take of UR cutthroat trout discussed in Section V.A. above.
4. Submit to NMFS an annual report summarizing results of fish population monitoring in the Umpqua River Basin.

D. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the administrative units (Roseburg and Coos Bay BLM Districts, Umpqua National Forest, and ODFW) must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary. The administrative units shall do the following:

1. Use the following procedures to avoid or minimize mortality resulting from operation of downstream migrant traps:
 - a. UR cutthroat trout shall not be marked or measured, but only removed from the trap box and released;
 - b. a soft, fine-mesh net shall be used to remove UR cutthroat from the trap box;
 - c. traps shall be checked and fish removed from the traps during morning hours, when water temperatures are coolest;
 - d. all fish shall be released in still water areas so that they may fully recover to minimize susceptibility to predation; and,

e. during periods of increased stream flow or increased debris transport by streams, traps shall be checked as often as needed to prevent debris accumulation in the traps which could result in increased mortality of fish in the trap boxes

2. To ensure that the various life stages of UR cutthroat trout and other salmonids covered by this Opinion are not harmed by the potential effects of electrofishing, the Roseburg and Coos Bay BLM Districts, Umpqua National Forest, and ODFW shall utilize snorkeling techniques rather than electrofishing to collect fish presence/absence data in streams.

3. In the event that the authorized level of take, including mortalities, is exceeded or if the circumstances indicate that such an event is imminent, the Roseburg BLM District must notify NMFS as soon as possible, but no later than two days after the take is exceeded. Pending review of these circumstances, NMFS may suspend activities or modify this Opinion in order to allow these activities to continue.

4. The Roseburg BLM District must submit a final report to NMFS within ninety (90) days of completion of the monitoring summarizing the results of the fish population monitoring project addressed in this Opinion.